

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) System for cooling an inner wall (7) of a thermal system comprising a double wall (9), said inner wall being subjected to temperatures greater than or equal to [[its]] the inner wall's physical capacity, said system comprising:

a network of tubes (1) independent of said thermal system to be cooled ; [, ]

~~said tubes (1) containing~~ cooling water (4) circulating under pressure and at a maintained temperature within said tubes;  
~~and being equipped with~~ nozzles (3) connected to said tubes and configured provided for atomizing the cooling water from said tubes and spraying it the cooling water in full cones (5) via said nozzles against said inner wall (7);

~~and controlled by~~ adjustable-flow cocks (2) controllable for controlling the atomizing of the cooling water during the spraying,

said network of tubes being an integral part of the outer wall of the thermal system to be cooled; ~~, and the system further comprising~~

a water spraying zone located between said respective inner and outer walls and maintained at a negative pressure; and means for maintaining a system configured for maintaining the negative pressure within the water spraying zone delimited by said respective inner and outer walls, the under negative pressure maintained for an evaporation of the sprayed cooling water at a low temperature.

2. (currently amended) System according to claim 1, characterized in that wherein the adjustable-flow cocks (2) pass through the tubes (1), said cocks terminating in said nozzles (3).

3. (currently amended) System according to claim 1, characterized in that wherein said tubes are installed on the inside surface of the outer wall (9).

4. (currently amended) System according to claim 1, characterized in that wherein said tubes are installed on the outside surface of the outer wall (9).

5. (currently amended) System according to claim 1, characterized in that wherein the cooling water (4) circulating in the network of tubes (1) is stabilized with respect to mineral content and pH.

6. (currently amended) System according to claim 1,  
~~characterized in that wherein~~ the network of tubes is in a closed circuit and the cooling water (4) is regenerated continuously.

7. (currently amended) System according to claim 1,  
~~characterized in that wherein~~ the cooling water (4) contained in the network of tubes (1) is maintained at a temperature less than or equal to 60°C.

8. (currently amended) System according to claim 1,  
~~characterized in that wherein, the system for maintaining the negative pressure with the water spraying zone (6) in which the water is sprayed is maintained under negative pressure by comprises a steam-extraction system (10) that extracts the steam produced within the water spraying zone.~~

9. (currently amended) System according to claim 8,  
~~characterized in that wherein~~ the steam-extracting system (10) is intended comprised of a compressor to compress said extracted steam and inject [[it]] the compressed steam into a dedicated exchanger unit so that said compressed steam produced then compressed acquires the a temperature and a pressure suitable for power co-generation.

10. (currently amended) System according to claim 1,  
~~characterized in that it further comprises further comprising:~~

a detecting system (11) composed of contact sensors which permit continuous monitoring of the wall temperature that is to be regulated.

11. (currently amended) System according to claim 1,  
~~characterized in that it comprises wherein said cocks include~~  
~~providing micrometric adjustment.~~

12. (currently amended) System according to claim 1,  
~~characterized in that it comprises wherein said cocks are~~  
~~provided with computer-controlled automatic operation.~~

13. (currently amended) Method of cooling an inner wall of a thermal system comprising a double wall, employed in a cooling system ~~according to any one of the preceding claims~~, said inner wall being subjected to temperatures greater than or equal to its physical capacity, in which cooling water circulating under pressure is contained in a network of tubes independent of said thermal system to be cooled, said tubes containing and being equipped with nozzles provided for atomizing the water and spraying it in full cones against said inner wall and controlled by adjustable-flow cocks, characterized in that it comprises maintaining the water-spraying zone delimited by said respective

inner and outer walls under negative pressure for an evaporation of the cooling water at a low temperature, the network of tubes being an integral part of the outer wall of the thermal system to be cooled.

14. (new) System according to claim 1, wherein,  
the system for maintaining the negative pressure within the water spraying zone (6) comprises a steam-extraction system (10) located in an vertically uppermost part of the water spraying zone and extracts steam from the upper part of the water spraying zone, and

the steam-extracting system (10) comprises a compressor to compress said extracted steam and inject the compressed steam into a dedicated exchanger unit so that said compressed steam acquires a temperature and a pressure suitable for power co-generation.

15. (new) System according to claim 1, wherein,  
the system for maintaining the negative pressure within the water spraying zone (6) comprises a steam-extraction system (10) located in an vertically upper part of the water spraying zone and extracts steam from the upper part of the water spraying zone.

16. (new) System according to claim 1, wherein, the system configured for maintaining the negative pressure within the water spraying zone delimited by said respective inner and outer walls, the negative pressure maintained for the evaporation of the sprayed cooling water at the low temperature of less than or equal to 70°C.

17. (new) The method according to claim 13, wherein the low temperature is less than or equal to 70°C.

18. (new) System for cooling an inner wall (7) of a thermal system comprising an inner wall and an outer wall, said system comprising:

a network of tubes (1) independent of said thermal system to be cooled, said network of tubes being an integral part of the outer wall;

cooling water (4) circulating under pressure within said tubes;

nozzles (3) connected to said tubes and configured for atomizing the cooling water ejected from said tubes and spraying the cooling water in full cones (5) via said nozzles against the inner wall (7);

a water spraying zone located between the inner and outer walls and maintained at a negative pressure; and

a steam-extraction system located in a vertically upper part of the water spraying zone and configured for maintaining the negative pressure within the water spraying zone by extracting steam from within the upper part of the water spraying zone and compressing the extracted steam, the negative pressure regulated for an evaporation of the sprayed cooling water at low temperature.

19. (new) System according to claim 18, wherein, the steam-extraction system configured for maintaining the negative pressure within the water spraying zone by extracting steam from within the upper part of the water spraying zone and compressing the extracted steam, with the negative pressure regulated for the evaporation of the sprayed cooling water the low temperature of less than or equal to 70°C.